

May 18 - May 24, 2001

The Terra spacecraft is in nominal mode. Anomaly resolution for the Solid State Recorder (SSR) is making good progress. All instruments are in Science Mode with the exception of MOPITT, which has been in Standby.

The planned upload of revised MISR flight software occurred successfully and smoothly on May 22. This version provides a new operating mode that reduces thermal cycling to prolong instrument life. As part of the controlled transition back to full operations, the instrument was transitioned through the various modes in real-time so that behavior could be observed. Then the instrument was commanded to transmit only engineering data until normal science operations were resumed late on May 23. Apart from testing, routine use of the new mode will not begin until after the Memorial Day holiday.

Efforts to resolve the SSR anomaly continued throughout this week, and good progress has been made. A number of different science playbacks and replays were performed, and there appeared to be a difference in the uncorrectable data that was collected when the playback was started outside of the suspected bad supersets, and when the playback was started within superset 30 or 31. After a thorough analysis of the down-linked data, the anomaly team concluded that the corrupted area in the SSR firmware is confined to MODIS supersets 30 and 31.

The anomaly team, including the SSR vendor, recommended re-allocating superset 30 to the "free" space within the SSR. This was performed on Thursday 5/24/01, and MODIS dumps were subsequently performed starting both within and outside superset 31. As would have been suspected if both supersets 30 and 31 were indeed bad, the amount of uncorrectable data with superset 30 removed is half that with both 30 and 31 present. Superset 31 was re-allocated today, and dumps will be performed to assess the results of this action. It is expected that no more corrupted data will be received from the MODIS SSR buffer once the operation to re-allocate superset 31 has been performed. Final resolution of this anomaly will require further testing and analysis of SSR components.

On Friday, May 18 reduced amplitude cooler operations were conducted on the MOPITT instrument. The cooler was commanded to run at 1/3 amplitude and later at 2/3 amplitude.

The results of this testing were inconclusive. While normal behavior was observed in both compressors and Displacer A, the actual observed operating amplitude for Displacer B was seen to be greater than the commanded value by about 40 percent in the first case and 50 percent in the second.

Plans were formulated to establish definitively whether any control of Displacer B remains and then determine what the exact extent of that control is. The MOPITT team is running the two instrument Displacers on their own with both compressors at zero amplitude (i. e., off) on Friday May 25. It is believed that the situation is being clouded by the compression wave within the on-board helium. With the compressors at zero, the lack of helium compression will allow more insight into the behavior of the Displacers.

The MOPITT Team is monitoring these operations via their Instrument Support Terminal in Canada. The command sequences will be terminated via contingency procedures issued from the Earth Observing System Operations Center upon the detection of any anomalous behavior. No problems are anticipated; the team continues to take a safe and conservative approach to diagnosing this anomaly.